

REMARKS

A petition to extend the time for response by one (1) month is enclosed herewith.

Claims 11-20 were previously pending in the application. By the Amendment, Claims 11 and 16 are currently amended and Claims 12-15 and 17-20 remain unchanged.

The Applicants acknowledge the rejection based on double patenting and defer substantive response until examination of both applications is essentially completed.

The drawings are under objection under 37 CFR §1.83(a). The Office Action requests that the subject matter of claim 11 (the washing container), claim 16 (the base of the container and where the sensor is located), claim 18 (the shape of the sensor), and claim 19 (the spray arm, the relationship with the sensor, and how the sensor is protected) be shown. The Applicants agree with the requested corrections to the drawings and will shortly submit corrected drawing sheets showing the requested corrections for entry in the present application.

Claim 16 is under objection for an apparent misspelling that has been cured by the present amendment. The term "ion" was used, wherein the term "in" was intended. The amendment to claim 16 cured the problem.

Substantively, the claims stand rejected under the cited prior art of record. Specifically, Claims 11-15 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 3,359,153 to Wennerberg et al. (Wennerberg '153). Claims 17-18 were rejected under 35 USC §103(a) as being unpatentable over Wennerberg '153 in view of US Patent No. 4,982,606 to Adamski (Adamski '606). Claims 16 and 19 were rejected under 35 USC §103(a) as being unpatentable over Wennerberg '153. Claim 20 was rejected under 35 USC §103(a) as being unpatentable over Wennerberg '153 in view of US Patent No. 6,294,906 to Kuechler (Kuechler '906).

Independent Claim 11 recites a dishwasher having at least one washing container for receiving items to be handled, with the items to be handled being subjected to an operative handling cycle including at least one of a washing step, a rinsing step and a drying step wherein the washing step includes introduction of a cleaning agent and a fluid carrier forming a washing fluid and the rinsing step includes introduction of a rinsing fluid. The present dishwasher further includes a system for recognition of the fluid level of the rinsing fluid contained in the dishwasher, the fluid level recognition system having at least one capacitive filling level sensor having at least two probes, forming two capacitor plates, operatively coupled to a sensor surface and projecting into the washing container for operative contact with the washing fluid, thereby using the rinsing fluid as a dielectric having a dielectric constant that changes with the fill level of the rinsing fluid, wherein at a first fill level the probes and the rinsing fluid form a capacitor having a first capacitance value indicating a first fill level and causing the filling level sensor to sense the first fill level and at a second fill level the probes and the rinsing water form a capacitor having a second capacitance value indicating a second fill level and causing the filling level sensor to sense the second fill level. The present invention provides a fill level sensor using a continuously variable capacitor as a sensor element, thereby providing continuously variable indications of fill level in a wash chamber of a dishwasher.

Wennerberg '153 discloses a water level indicator for a dishwasher that provides an indication of three distinct fill levels based on the actuation of three individual sensors. As the water level rises, output signals are sequentially produced by the low-level sensor 26, the medium level sensor 28 and the high-level sensor 30 as depicted schematically in Figure 1. (Col. 2, ll. 61-64). This specification indicates that the sensor may be of any well-known type, such as an electrode gap, capacitive, thermal, optical, etc. in a manner to sense the water level in the machine chamber. (Col. 2, ll. 64-67). Accordingly, each sensor in Wennerberg '153 senses the presence of water at that sensor and the positioning of the sensor in cooperation with the positioning of the other respective sensors in the circuit provide an indication of one of three discreet fill levels.

In substantial structural and operational contrast, the present invention provides a single filling level sensor that detects continuous variations in the fill level in the water chamber of the dishwasher by using the rinsing water itself as part of the capacitor that is the sensor. The rinse water forms the dielectric while the sensor includes two probes projecting into the water chamber for contact with the rinse water. While the two probes form the capacitor plates and the rinse water acts as the dielectric, each position of the rinse water naturally means a change in water volume which means a change in the dielectric constant of the sensing capacitor. Therefore, at a first fill level, the capacitor has a first capacitance based on the first dielectric constant provided by the first rinse water level. At other subsequent water levels, the dielectric constant is different than the dielectric constant at the first rinse water level and therefore the capacitance of the capacitor is different at second and subsequent rinse water levels from the first capacitance at the first rinse water level. The presently amended claims set forth this structural distinction and it is herein asserted that the Wennerberg '153 patent cannot be used to either anticipate the present invention or render the present invention obvious when combined with Adamski '606 or any other reference.

Adamski '606 fails to cure the deficiencies of Wennerberg '153 with respect to the present invention. While Wennerberg '153 teaches the use of three sensors for detecting discreet levels of water in a wash container by sensing the presence of the water at each sensor, nothing in Wennerberg '153 teaches the use of continuously variable capacitance to determine a continuously variable water level. By listing the various types of sensors, Wennerberg '153 asserts their commonality for substitution as the water level sensor. The electrode gap, capacitive, thermal, and optical all have the common ability to detect the presence or absence of water at a particular level or position. None of these sensors, save the capacitive sensor, can be used to vary capacitance to determine a continuously variable fill level. Therefore, the use of the capacitor for its ability to detect the presence or absence of water does not provide the necessary teaching that would direct one of ordinary skill in the art to use the capacitor in a manner wherein the water itself, i.e. the medium to be studied, is used as a dielectric for the capacitor or sensor itself. Therefore, there is no teaching or suggestion to combine Wennerberg '153 and

Adamski '606, and, therefore, Adamski '606 cannot be combined with Wennerberg '153 to achieve the present invention. Such a combination would not result in the present invention and therefore, the combination is improper. Once again, the combination of Wennerberg '153 and Adamski '606 has been determined to be improper and cannot be used for rendering the present invention, as set forth in claims 17-18, obvious.

Claims 16 and 19 are not obvious over Wennerberg '153. The Official Action asserts that it has been held that rearranging parts of an invention involves only routine skill in the art and is not inventive. This statement has no application to claims 16 and 19. Even though it has been demonstrated that claim 11 is allowable and claims 16 and 19 depend therefrom and are also allowable, claims 16 and 19 are allowable on their own merits. The sensor that is assertedly rearranged is heretofore unknown and therefore, there is no rearrangement of existing components.

Even though the Wennerberg '153 patent discloses a level sensor, there is no teaching or suggestion to deploy the sensor in the base assembly to detect rinsing fluid that has flowed from the washing container thereinto, as set forth in claim 16. Further, there is no teaching or suggestion to locate the sensor at a position protecting it from spray water, as set forth in claim 19. While Wennerberg '153 teaches that three detectors are desirable to measure the water at three different levels, Wennerberg '153 also teaches that as the water level rises output signals are sequentially produced by the low level sensor, 26, the medium level sensor, 28 and the high level sensor 30. (Col. 2, ll. 61-64). Under these conditions, to achieve a level measurement, the sensors must be actuated in sequence so that the low level precedes the medium level which precedes the high level. With a spray device, water would typically hit the sensors which are configured to detect the presence of water at rapid, random intervals such that no sequential operation could be performed to indicate that the water level was full. Therefore, there is no reason or teaching to protect the sensors from spray water. Accordingly, Wennerberg '153 cannot be used to render the present invention, as set forth in claims 16 and 19, obvious.

Regarding claim 20, Wennerberg '153 does not teach the limitations of claim 11 as asserted in the Official Action and, as such, cannot be combined with Kuechler '906 to render the present invention obvious. Wennerberg '153 fails to disclose any sort of specific structure for the sensors 24, 26, and 28 as seen in the schematic figures and therefore, there is no basis to assert that any such sensor would be adaptive to the use of a self-adhesive layer regardless of the teachings of Kuechler '906. Therefore, the combination of Wennerberg '153 and Kuechler '906 is improper and would not result in the present invention. Therefore, the outstanding objection of claim 20 as being obvious over Wennerberg '153 in view of Kuechler '906 is in error.

For these and other reasons, Wennerberg '153 does not disclose the subject matter defined by independent Claim 11. Therefore, Claim 11 is allowable. Claims 12-15 depend from Claim 11 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Wennerberg '153 and Adamski '606, either alone or in combination, do not teach or suggest the subject matter defined by dependent Claims 17 and 18. Therefore, Claims 17 and 18 are allowable. Claims 17 and 18 depend from Claim 11 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Wennerberg '153 does not teach or suggest the subject matter defined by dependent Claims 16 and 19. Therefore, Claims 16 and 19 are allowable. In addition, Claims 16 and 19 depend from Claim 11 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Wennerberg '153 and Kuechler '906, either alone or in combination, do not teach or suggest the subject matter defined by dependent Claim 20. Therefore, Claim 20 is allowable. Claim 20 depends from Claim 11 and is allowable for the same reasons and also because they recite additional patentable subject matter.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 11-20 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,



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